CLAIMS

1. A multi-level (hierarchical) process monitoring system comprising a process monitoring unit, at a higher level of the system, and a plurality of sensors at a lower level of the system, at least one of the sensors having SEVA capability (self-validating capability), the sensors being adapted to provide respective measurement values of respective process variables to said monitoring unit, said monitoring unit being so arranged as to monitor the outputs of the sensors and to identify any significant apparent change in the process conditions as detected from an overview of said sensor outputs, and on detection of an apparent significant change, to request additional status information from at least one of the SEVA sensor/s to determine whether the apparent change is in reality due to a change in the characteristics of a particular SEVA sensor rather than an actual significant change in the process conditions.

2. A process monitoring system as claimed in claim 1 comprising one or more actuators to effect process changes, the actuators being arranged to provide the monitoring unit with actuator position signals.

3. A process monitoring system as claimed in claim 1 or claim 2 in which most of the sensors are SEVA sensors.

4. A process monitoring system as claimed in any of the preceding claims in which the monitoring unit implements a multivariate statistical analysis of the measurement values of the sensors, and compares the results of that analysis with reference information to identify any significant apparent change in process conditions, to determine whether or not to initiate interrogation of the SEVA sensor/s.

5. A process monitoring system as claimed in claim 4 in which the reference information is comprised of predictions of a model and historical data of stored statistical analyses.

6. A process monitoring system as claimed in claim 5 in which the model utilises actuator position information.

7. A process monitoring system in which the request for additional status information initiates the application of a non-routine test in or to at least one of the SEVA sensor/s.

8. A process monitoring system as claimed in any of the preceding claims in which at least some SEVA sensors measure the same variable, and the SEVA measurements (VMV, VU and MV status) of the same variable are combined to generate a best estimate.

9. A process monitoring unit adapted for use in a process monitoring system in accordance with any one of the preceding claims.